

PDR RID Report

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Originator Steedman, John

Phone No (301)286-4832

Organization Nascom

E Mail Address steedman@osi540sn.gsfc.nasa.gov

Document CSMS Requirements Specification

RID ID	PDR	296
Review	CSMS	
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Priority	2	

Section 7.1.3

Page 7-6

Figure Table NA

Category Name Design-ISS

Actionee HAIS

Sub Category

Subject Availability vs. Redundancy

Description of Problem or Suggestion:

C-ISS-4030 requires a primary and backup router. Is this a source requirement or a characteristic of the design resulting from an availability or MTTRS requirement. If the former, why is it a source requirement, if the latter, why are VO WAN circuits only connected to the primary router in the design specification? Across what two points are you measuring availability (i.e., end-to-end or what)?

Design Specification, general comment: will you develop an end-to-end data flow diagram with all of the circuits and equipment on one picture? You will probably find a lot of details get missed if you don't.

Originator's Recommendation

Identify need for secondary router via availability modeling and/or M&O requirements. Provide rationale for not having a second VO WAN circuit which certainly has a lower MTBF than a router and therefore is at greater risk of reducing availability.

GSFC Response by:

GSFC Response Date

HAIS Response by: Forman

HAIS Schedule 2/28/95

HAIS R. E. D. Moore

HAIS Response Date 5/11/95

1) C-ISS-4030 has been deleted, so there is now no specific Level 3 or Level 4 requirement dictating that the ESN WAN employ redundant routers. However, the use of redundant routers is still an element of the design (see item 2 below). The ESN WAN links are provided by PSCN, who is responsible (working with ECS) for providing link topologies that meet the RMA requirements ECS places on them. PSCN will provide this availability, which may involve PSCN provisioning redundant links.

2) The use of a secondary ESN WAN router accomplishes two objectives. The first is to backup the primary ESN WAN router in the event of its failure. The second purpose for the secondary router is to act as a backup for the FDDI Switch connecting the DAAC subsystems. In the event of a catastrophic FDDI Switch failure (e.g., a failure requiring several hours down time), the secondary ESN WAN router can be configured to replace the FDDI Switch.

3) The ESN WAN RMA requirement must be consistent with the requirement of EOSD3990 (Function of Data Order Submission Across DAACs), which has 0.96 availability and 4 hours MDT. ECS will sub-allocate this requirement to determine a specific RMA requirement for the ECS WAN. For instance, EOSD3990 could be dividing into two sections, one involving the DAAC portion and the other involving the ESN WAN portion, each with an equal RMA requirement of 0.98 and 4 hours MDT. (The ESN WAN RMA calculation involves the ESN WAN router at each DAAC site and the PSCN-provided circuit connecting the two DAACs.) Additionally, because EOSD3700 specifies a "default" RMA of 0.96 and 4 hours MDT, ECS will evaluate "worst-case" functions in order to insure that overall ECS functionality adheres to EOSD3700.

4) Detailed RMA calculations and their underlying assumptions were documented in DID515, Availability Models/Predictions, which was submitted to NASA during the CSMS PDR timeframe.

Status **Closed**

Date Closed **6/8/95**

Sponsor **desJardins**

Attachment if any

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